

INDUSTRY & TRANSPORTATION IN THE CANADIAN NORTH

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The specific area which we have been asked to deal with relates to industry and transportation in the Canadian North. The programme in the small print indicates a more provocative interest than a mere survey. The expansion of the topic contains all of the usual "seminar signal words": "Private firms"; "maximize profits"; "orthodox economic analysis"; "exploitation of natural resources"; "utilization of native labour" -- and then having apparently compelled us to defend all of the economic sins of the past 100 years, it asks us to consider "the social consequences for Canada resulting from such developments in the North". In first year of law school, as I recall, we were warned against the fallacy of the double question. "Have you stopped beating your wife yet?"

You will forgive me if I decline to defend unspecified activities and deal rather with the questions of potential developments in the North, the transportation requirements relative to such development, and the overall social consequences of such development.

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Before proceeding, it might be helpful to define our terminology.

We will probably all agree that by development we mean the utilization of resources both human and natural in a defined area. There may not be the same agreement on the definition of the term "northern". There are those who would define the northern region as the area lying north of 66° North Latitude or the territory lying within the Arctic Circle. Others have suggested roughly the land mass lying north of established surface communication links and still others suggest the area lying north of 60° North Latitude which represents roughly the Northwest Territories.

While such definitions have the attraction of simplicity, they are not adequate for purposes of planning or economic development because such arbitrary determinations do not define a homogeneous region with similar problems capable of common solutions.

In fact the North is comprised of at least two distinct zones or regions. The Arctic, or Far North, can be defined as that territory lying north of the 50° July isotherm, or roughly the territory north of

the tree line. It is the land lying north of a line that would stretch from the delta of the McKenzie River in the west, in a southeasterly direction to a point near Churchill on Hudson Bay and in Quebec the land lying north-west of a line from Great Whale River to Ungava Bay.

The second zone, which could be termed the Mid-north or Near-north, would be the land lying north of the zero degree January isotherm and would encompass to a very large extent the remaining area of the Canadian shield. For the purposes of my discussion this is the territory that I consider as representing northern Canada. An area encompassing more than 70% of the Canadian land mass, but with less than 1% of the Canadian population.

As an indication of the extent of the Canadian land mass I would simply indicate that from Alert in the North to the 49th Parallel in the South it is a distance of 2,100 miles, equivalent to the distance between Victoria and Quebec City.

We share the relevant northern latitudes with the U. S. in the Alaska territory, with the Scandinavian countries in Greenland, Norway, Sweden and Finland, and perhaps more comparably, with Russia. Due to the time factors, I will comment only on Russia.

RUSSIA

As might be expected, the most extensive planning relative to northern development and transportation is to be found in the Soviet Union. The central governing Institute of Northern Planning is in Moscow with regional institutes with specific functions in other cities.

The Leningrad Institute has specific responsibility for the northern Siberian area, and working under this Institute are the institutes at Novosibirsk and Irkutsk among others. To indicate the magnitude of the operation the Leningrad Institute alone has sixty scientific researchers for studies in demography, sociology, construction problems, transportation problems, etc.

The Russians have divided the north into three primary zones based on temperature variants. Each of these major zones is divided into sub-regions reflecting differences in climate, economic resource base, etc.

Zone A is the Arctic zone characterized by extreme conditions for construction, living and maintenance. Communities are built in this zone only for the purposes of extracting or exploiting resources. The buildings are designed on aerodynamic principles to preserve heat against the bitter winds. One of the designs which we saw was octagonal in form and comprised of a number of units attached one to the other with connecting corridors, and a protected area in the centre.

Snow and wind are the critical problems in Zone A. To avoid or at least minimize this problem the living units in Zone A are built on stilts to allow snow to blow under the structure and to permit permanent freezing of foundations in the permafrost. All connections between the buildings are by interior corridor.

It is a general principle that communities in this zone will not exceed approximately 1,000 individuals. If schools are constructed in this zone they are made central to the living quarters with easy access from the living area and with rather restricted playing area. Due to the long bitter winters the children are indoor most of the time.

The second zone, or mid-northern zone, has less difficult weather and construction conditions. The designs permit for certain green areas and the openness of construction is more marked than in the Arctic zone.

The third zone representing the southern portion of the region has relatively larger open spaces since plants will grow in the open. The multiple living units are still enclosed but they are less compact than in the Arctic or mid-northern zones. In their planning they use the poorest land for the construction of towns in order to preserve the good land for planting and small recreational areas. Here again, as in the Scandinavian countries, the emphasis is on the development of growth centres and the discouragement of population

The maximum community planned for Zone A, the most northerly zone, is approximately 1,000. In Zone B there is a comparable restriction but depending on specific locality requirements, they will plan for a new community up to a maximum of 10,000 individuals. In Zone C they have plans for new towns up to full sized communities. It is the intention of the planners that men will commute between their permanent homes in Zone C or B, to work areas in the other zones. For example, they might work in Zone A, the Arctic zone, for a period of two weeks and then return to their home in one of the other areas for a two-week period. All of the major institutions such as schools, hospitals, etc. would be in the home locality and the actual work site would be limited in planning to the requirements of a work force.

The following facts will indicate the scope of plans for population shift in Russia. Russia's present population is 230 million, and by the year 2000 they estimate a total exceeding 300 million. The urban portion of the present population occupies 20% of the land mass but contains 72% of the total population. The objective of national policy is to attempt to move people across the Urals into Siberia where 75%

of the natural resources of the country are located. By the year 2000 the objective is to have shifted 40% of the population east of the Urals, and that by the year 2050 there would be a balance in population between the eastern and western parts of the country.

In Siberia major expansion is taking place in the air industry with the development of first-class air facilities throughout the region. Road and rail services are relatively under-developed although there is heavy utilization of the Trans-Siberian Railway with branches to specific centres. The waterways of Siberia, which flow in a north-south direction, are deep with negligible rapids permitting marine movement of commodities and people. There is extensive use of hydrofoil for passenger movements in the eastern Siberian region, particularly along the Angara and Lena river. There also has been a major pipeline construction programme.

The highway system is the least developed branch of transport in the Siberian region. We were advised that it is the intention of the Russian government to utilize aircraft as the prime mover of commodities

from the Arctic region into the central Siberian area, including the movement of ore and concentrates with aircraft such as the Antanov 22, a large Turbo-freighter. There are presently 100 cities and towns in Siberia and 25 new towns are in process of being built, but there are only a few large cities in the Arctic region of Siberia, such as Norilisk, Magadan and Yakutsk. The remaining communities are small towns ranging from 3,000 to 10,000 population.

Now let us turn to the Canadian scene. Perhaps as examples of our best work we might point to Inuvik in the Northwest Territories, and Thompson in Manitoba. These communities indicate what government in one case (Inuvik), and private enterprise in the other (Thompson) can achieve in planning a community from the standpoint of the geography and climate. These are examples we can be proud of. I could name you many other points which are examples of the shocking situation that results from inability or unwillingness of government and/or private enterprise to accept their responsibility for community planning in the north.

The problems that we face are not new, nor limited to Canada.

In fact they are the same problems that every country in the northern hemisphere faces relative to the development of its northern frontier.

What we require for a meaningful development programme is a systematic and extensive inventory of our resources in northern Canada. We must determine objectively the economic potential of both renewable and non-renewable resources. In addition we need the fullest co-operation between the various levels of government. It is not in my opinion acceptable to use provincial boundaries or other imaginary lines or strict juridical interpretations of the British North America Act as excuses for inaction. The magnitude of the problem is such that we should enlist the full support and participation of all those interested in the development of the country. We are all beneficiaries of northern development but it can be accomplished only if there is a forward looking national approach to the problem by both Provincial and Federal authorities.

Let us look forward and anticipate what we might visualize as developing in our own country. I would suggest that we will see a zoning of the northern portion of Canada with an Arctic or Far North region and a Near or Mid-north region. I do not anticipate a vast increase in population in the northern portion of the country during the foreseeable future. I would think that particularly in Zone 1, the Arctic region, that people will be moved into an area for specific resource development, oil or mineral. We shall probably see develop communities which will be largely working communities of approximately 1,000, with the ancillary facilities required for such a working force.

The actual growth centres will be established in a more southerly zone where a permanent population could and would be established. It would be in these centres where we would see the hospitals, the schools and the permanent homes, and it would be in these centres where any secondary treatment of minerals and the service industries will be located.

As previously stated, the concept of northern development refers to the utilization of resources, both human and natural. This in turn requires consideration of the type of community we envision for the northern area of the country. It is in this context of development and community planning that transportation must be considered. In short, the primary problem is to determine the purpose and nature of community development and based on this decision we must then determine the nature and function of transportation and communication in achieving the overall policy goal.

Transportation of itself, contrary to popular belief, will not create communities or increase population. The great immigration era of the 19th Century opening the vast grain belt of the prairies will not be repeated in the northern areas of Canada. The construction of a railway across the North will not of itself result in a population influx as did the construction of the Canadian Pacific through the southern region of the country. The existence of the Ontario Northland Railway to Moosonee and the Hudson Bay Railway to Churchill have not brought in a flood of settlers simply because the North will not be

settled in the way that the plains area was settled in the 19th Century.

Transportation in the North will meet the requirement to develop the resources of forest and mine which will occur in pockets rather than the broad belt settlement of the agricultural resources of the prairie region. This form of development will determine the transportation and communication network in the Canadian northland.

In the Far North for example, depending on world demand factors, there are impressive deposits of iron ore on Baffin Island, base metals and oil in the Arctic archipelago-mineral development in the Coppermine and Hope Lake area. Further south, silver, copper, asbestos in the Yukon - oil and copper along the MacKenzie and in northern Alberta - uranium in northern Saskatchewan - nickel in Manitoba, and oil in the lowlands of Hudson Bay.

Pipelines will carry the oil from the North to southern refineries.

Containerization will greatly expand and permit co-ordination of road and rail - road and water, and in some cases a fully integrated service of water - rail - road as presently operated by the White Pass and Yukon Railway.

The historic evolution of transportation from water to rail to highway and air, will in general be reversed and we can anticipate that the new pattern will be air, highway, rail and water.

There will be a major expansion of movement of both commodities and people by air, particularly from the far north zone into the centres of the southern area. Large aircraft such as the Hercules, or C5, will be utilized for the movement of commodities and people northbound and ore concentrates south-bound. The development of short take-off and landing (S.T.O.L.) and vertical takeoff and landing (V.T.O.L.) equipment will reduce the capital cost in facilities and offer transport links to smaller communities.

Rail would only be considered where a major resource was developed and the new rail mileage was relatively small. We will see the gradual extension of existing rail lines such as the Pine Point development, the Lynn Lake extension in Manitoba, the Quebec North Shore from Seven Islands to Shefferville, but I do not contemplate a third trans-continental or lateral rail link in the North.

Highway construction represents a far more flexible means of transport, and permits utilization by both public and private sectors of the economy. There would appear to be sound reason for extending highway links to rail line and extension of highways from the south to the growth centres of the northern region.

Similarly the development of air cushion vehicles such as the Hovercraft and Terriplane could have an impact on surface transportation developments. At present the cost factors associated with this type of equipment limits its operational use for movement of people or commodities in the north, but this is understandable since they have not been designed with northern conditions in mind. If these problems can be overcome we would anticipate the construction of hoverways for the movement of such vehicles, either preliminary to highways or in lieu of highways in difficult terrain.

The possibility of moving products by water from Arctic points to the St. Lawrence, Europe, or Asia, would have a tremendous impact on the economics of developing the resources of the region particularly the Eastern Arctic.

One must also consider the possibilities of commodity pipelines.

The important work being done by the Alberta Research Council has established that the technology is feasible. There is no question that commodities can be moved either in capsules or in a slurry. As to whether or not it will play a part in northern development requires further investigation in specific cases.

Similarly such concepts as nuclear freight submarines are interesting but cost factors incidental to such operation, such as the depth of harbours and cost of construction for what would largely be one way movements, make the economics at this point in time questionable.

We are on the threshold of important economic expansion in the north of Canada. The exploration for oil and minerals is going forward. Economic expansion is beyond question. What is in doubt is the direction which this development will take. We must eliminate some of the mythology that is attached to the northern frontier concept. The fairy tales are not necessary. The reality is sufficiently exciting.

I now turn to this reference in the programme to "private enterprise and the concept of maximizing profit through utilization of natural resources" and also the criticism concerning the use of native people.

As to the utilization of our resources, I think this is clearly a matter for our national and provincial governments to determine and, in fact, for the people of Canada to determine. The factors of environmental control, ecology, and the management of resources are factors which demand consideration in arriving at any policy decision.

It is how we react to known facts that is subject to criticism — not that a specific result occurred. For example, was Sir Walter Raleigh an inconsiderate, profiteering, indifferent, western capitalist because he introduced tobacco into England (or even worse, were the Indians who introduced Raleigh to tobacco the real wrongdoers)? Or was Henry Ford the deliberate prince of pollution by virtue of making motor vehicles available to an increasing part of society? In fact, in each case of new product or technological breakthrough, the innovator is the hero. It is

But Raleigh's innocence or Ford's productive motivation are not now a defense for actions continued with the knowledge available to us at this point in time. Time is a dimension in decision making both for government on the national policy side and industry from the standpoint of investment and operational standards.

We are prone to accuse industry because it is handy and a popular target but industrial waste is as much an industrial fact of life as human waste is a biological fact of life. We have partially but only partially legislated relative to disposal of human waste. We must be as specific relative to industrial waste, and this applies in the south of Canada but particularly in the North. We have an opportunity in the North based on our experiences elsewhere to provide the guidelines which will avoid the repetition of error. We have an opportunity of establishing the rules to the game before the game begins.

There are many approaches to development in the North. For example, there is the "coeur-de-bois approach". The proponents of this approach argue that nature should be disturbed in no way. An unsullied wilderness occupied by the adventurer and the noble savage. Now this

is a sound policy if you conclude that Canada's best use is as a source of wild furs or a refuge for social dropouts. There were many in England and France who for a great part of our history felt that this was the prime purpose. Or you could apply "the western rancher approach" which was based on the wide open spaces for the grazing of cattle but no homesteading and no fences and no agriculture.

At the other extreme is the situation best exemplified by the worst examples of strip mining in the Appalachian region in the United States. This approach is based on a philosophy that one should grab as much as he can as quick as he can regardless of the impact on succeeding generations.

Neither of these extremes are acceptable to the majority of the Canadian people. Individuals do have a duty to their fellow citizens and to their community and I think that corporate citizens have the same responsibility.

The people of Canada must indicate the direction in which they feel national policy should go in the utilization of our resources and the rules must be established before the game begins. This allows

both industry and government to weigh development gains and return on investment against ecological cost and other environmental debits.

I think it is unfair 50 years after an industry has been established to start accusing it of an assault on the environment when it has in no way transgressed any regulation or changed its mode of operation. I have the same attitude concerning industries who refuse to adjust to changed circumstances simply because this is the way things have been done for a half a century.

What I am really trying to impress is that we reduce the rhetoric and the emotion -- that we objectively assess the public interests from the standpoint of development and environment and that we establish rules for the achievement of this balanced goal.

Now turning to the question of participation of native people. It is particularly in this area of the development of the North that transportation will have the major impact. Throughout the studies of our Royal Commission, it became obvious that the points lacking a minimum standard of service were the Indian, Metis and Eskimo communities.

And not only were these individuals being denied the opportunity afforded other members of society but they were being penalized from increased costs of living, irregular mail delivery, lack of fresh food-stuffs, and the availability of health, medical services and educational facilities.

Let me just quote you from some of the evidence taken during our inquiry.

A nursing sister at Pukatawagan gave evidence that she was 170 miles away from a doctor and that no means of communication was available. She stated . . . "I have to depend on service of a storekeeper then we must pass on the message from section to section. We do not have any airstrips and no regular air service and if an emergency case comes up during freezeup and breakup they cannot be flown out on account of the ice."

A resident of Ilford stated . . . "I have seen a young Treaty Indian of Split Lake Reserve lying flat on his back with a 12 inch spike driven through his leg and unable to call a plane because the radio was unserviceable. The planes are the lifeline of the North but there are seasons when float-equipped planes cannot operate in the fall and the spring. We need more airfields all across the North to help combat the weather, to help save lives, to deliver food and medical supplies."

The Chief of Poplar River stated . . . "About a year ago we lost a very husky lad who bled to death on account of inadequate service in our clinic there . . . we need transportation for our school children - our United Church group put in money for the transportation of our children to come home for holidays but the school inspector told us that they will only pay for the transportation in the summertime after school term is over but that during holidays we would have to pay for their transportation. But we can't pay for their transportation this winter although we are trying but we did not have enough money for the Christmas holidays but we want them to be at home."

The Chief of Norway House stated . . . "I don't think our people mind working but men that have wives and children don't like to leave them for six months and never see them."

The Chief from Shamattawa stated . . . "Sometimes we have been two months without any mail service. The earliest we get our mail is once a month. It is very much needed for the old age pensioner who has to wait for his cheque to help him live, the same thing with

family allowance. Sometimes two months or a month before they get their cheque. There is nothing we can do when a person is sick, we have to let him die. We used to have a radio at one time but the Department took it away from us. If I want to send a message, I must go to the Hudson Bay Company and I have to pay to use the radio."

Alfred Settee, representing the Metis community, stated . . .

"Many of the people in northern communities are in a poverty wage area yet have to pay deplorable prices for basic necessities. We cannot get a loan to build homes and coupled with the high cost of transporting house materials it is impossible for a Metis to build a house for his family."

Conditions such as these must not be permitted in a concerned society. Social implications resulting from a failure to provide minimal essential services cannot be quantified. Beyond the problem of the individual resident there are direct economic and social penalties to the northern region resulting from inadequate transport service. It is my firm conviction that if the native people of the

north are to fully participate in the economic and social life of the region then they must have available access to the larger centres where work and services and institutions are available.

A major problem in the north is the large turnover of employees in the resource-based industries. While there is this continuing labour shortage, the native people are chronically unemployed or underemployed. In many cases, our Commission found that where Indians and Metis have been employed the experience of employers has been less than satisfactory particularly where employment requires regular work habits. This unsatisfactory experience is not due to lack of ability or application on the part of these employees, rather it can be traced to either a lower level of health which affects the working endurance of the individual or the social habits of Indians, Metis and Eskimos as evidenced by attachment to family and home.

The problems of health and medical care including proper diet are receiving increasing attention from the responsible authorities.

Of equal importance is the need to recognize the unique social and cultural attitudes of these citizens. We hear a great deal concerning a new approach to the solution of community problems facing the native people. Over the past 100 years we have attempted to deal with the problem from a colonial, paternalistic standpoint. We are providing an improved level of education. We have moved children from their home communities to educate them in a different milieu. We have through various departments attempted to meet the problems existing in the various communities. While well intentioned, these programmes have not succeeded to the degree desired.

It is my opinion that any policy which ignores the basic social characteristics or is designed to break up native communities will ultimately fail. What is required is a policy that will respect the unique social aspect of native life in the North while encouraging participation in the economic life of the region. Through proper allocation of transportation resources, native people can be encouraged to work in the forest and mines and in other industries while maintaining and enhancing the family life of the communities. I think

there is much that we can learn from the Russians and their experiences in eastern Siberia and to a lesser extent from the Danish government in their programmes in Greenland.

The problems which confront us are not new. The problems of labour turnover, of distance, of cost, are the same problems that have faced this country from its inception. The problems of western expansion in the 1880's were met by dynamic national policies. Similarly in the north it is imagination and leadership that is required.

While the economy of the north will, to a major extent, be based on non-renewable resources in contrast to the southern part of the country, this need not deter us. Rather it should challenge us to evolve a policy that will permit meaningful development in the light of these economic realities.

We have the technical ability in Canada. What we require is encouragement and co-ordination. We must enlist the participation of the planner, the engineer, the economist in a task force consideration of northern development.

This conference is both timely and important. The Federal and Provincial governments are sincerely concerned with the problems involved in the orderly development of our northern areas. Seemingly overnight the rest of Canada huddled along the U.S. border has awakened to the fact that the job of nation building is only half done. We have in one hundred years occupied the perimeter of this vast land and guaranteed its independence. But the real challenge of nationhood remains — can we occupy and conquer the vast land itself?

